



PROJECT ID:  
610

# Evaluation of Existing and Required Pierside Infrastructure to Accommodate Shoreside Collection and Treatment of Navy Vessel Ballast Discharges



Pier-side infrastructure for ship maintenance is critical for keeping ships operational for mission readiness. (Photo by: MC3 Juel Foster)

## OBJECTIVE

The objective of this project is to create an initiation decision report (IDR) that investigates and identifies gaps in pierside infrastructure availability that may affect readiness for receiving offloaded ballast water.

## PROBLEM STATEMENT

Ships regulate their draft, trim, and list by adding or removing ballast water from designated storage tanks. Tanks designed to use only seawater for ballast are defined as “clean” ballast tanks. Tanks that utilize density differences between fuel and seawater for combined ballast storage are categorized as “compensated fuel ballast (CFB)” tanks. International, federal, and state regulations continue to establish and propose discharge restrictions as well as

treatment and management controls on ballast discharges. For DoD vessels, DoDM 4715.06 Vol 3 directs new construction vessels to manage clean ballast discharges. Additional requirements are anticipated under the Uniform National Discharge Standards program (Section 312(n) of the Clean Water Act) that identified both clean and compensated fuel ballast water as discharges requiring control by equipment and/or management practice for vessels of the Armed Forces. While shoreside collection is an option to control ballast discharges and offers ship design and operational flexibility, there are significant knowledge gaps regarding the infrastructure needed to implement this option.

## DESCRIPTION

The project team will investigate Naval



Facilities Engineering Command (NAVFAC) waterfront operations, Public Work Center operations, and the facilities and technology assets they maintain in an effort to determine the infrastructure or assets, including technologies viable for demonstration and validation, that are needed to receive clean and CFB ballast water across a wide variety of ship classes and locations. The structure and targeted content of this IDR is anticipated to include information from 3-5 Navy homeports detailing current infrastructure, estimating volumes that could require offloading and broad impact analysis of options.

#### RETURN ON INVESTMENT

The absolute costs of shoreside collection and any associated demonstration, selection and integration versus the costs of alternate ballast water management methods addressing the needs of all Navy vessels cannot yet be conclusively calculated. However, it is anticipated that shipboard equipment installation to manage ballast water could be several million dollars/vessel, would

require extensive drydocking periods, and not all vessels can be reasonably backfit, or, depending on mission, forward fit to accommodate additional equipment such as pumps, tanks, piping, and auxiliaries. Therefore, a rough return on investment can be calculated based on the savings of averting backfit. Additionally, avoidance of noncompliance penalties is beneficial, both financially and in terms of public good will.

#### NAVY BENEFITS

Environmental regulations are intended to reduce the environmental impacts associated with discharges from vessels, stimulate the development of improved pollution control devices, and advance the development of environmentally sound vessels. The development of shoreside collection options for ballast water would meet current and emerging discharge requirements by eliminating ballast discharges pierside for vessels capable of transferring ballast water. There are no clean ballast water discharge receiving facilities in the United States, and only a small portable

CFB collection system at Naval Station Everett (NSE). Therefore, innovations in pierside facilities and associated technologies are needed, and this IDR will serve as a basis to explore the feasibility of various options.

#### TRANSITION DESCRIPTION

This IDR will be presented to Chief of Naval Operations Energy and Environmental Readiness Division (OPNAV N4I) and Naval Sea Systems Command 05P5 to assess in what locations, and under which conditions, a shoreside collection system might be feasible. As a result of this IDR, the Navy will have information needed to assess future environmental compliance posture to plan and propose potential shoreside collection facility (or facilities) within the next 5-10 years.

#### CONTACT

For more specific information about this project, contact the Principal Investigator at 301-633-2199.



#### ABOUT THE NESDI PROGRAM

The Navy Environmental Sustainability Development to Integration (NESDI) program is the Navy's environmental research and development demonstration and validation program, sponsored by OPNAV N4I Installations Division and managed by the Naval Facilities Engineering Systems Command from the Engineering and Expeditionary Warfare Center in Port Hueneme, CA. The mission of the program is to provide solutions by demonstrating, validating and integrating innovative technologies, processes and materials and by filling knowledge gaps to minimize operational environmental risks, constraints and costs while ensuring Navy readiness and lethality.

For more information, visit the program's web site at [www.navfac.navy.mil/nesdi](http://www.navfac.navy.mil/nesdi) or contact Ken Kaempffe, the NESDI Program Manager at 805-982-4893, DSN: 551-4893 or [kenneth.c.kaempffe.civ@us.navy.mil](mailto:kenneth.c.kaempffe.civ@us.navy.mil).

Distribution Statement A: Approved for public release; distribution is unlimited. Mention of any product or service does not constitute an endorsement by the U.S. Navy.